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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/784,549	FLANAGAN, AIDEN	
	Examiner	Art Unit	
	MICHAEL ABOAGYE	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 June 2009_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _48-69_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _48-69_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The rejection of claim 48, has been modified because AAPA contrary to what was indicated in the previous office action, teaches scanning, given the broadest interpretation, wherein "scanning" means traversing or sweeping the radiation, see Dictionary.com), AAPA (prior art, figure 1) shows as such.

Claim 66 in the instant office action is rejected by AAPA in view of Shapovalvo et al. AAPA teaches substantially all the limitations of claim 66 but fails to teach directing and redirecting the radiation beam generated by the stationary radiation. Shapovalvo et al. teaches as such, Shapovalvo et al. is applied to modify AAPA.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 48-65 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6696667 in view Hella et al. (US Patent No. 4,456811) and Freedenberg et al. (US Patent No. 5620618).

Although the conflicting claims are not identical, they are not patentably distinct from each other because they share the following common features. Laser cutting a tubular medical device generating a beam of radiation from a stationary radiation source; and directing the radiation beam onto the tubular workpiece by scanning the radiation beam so that a prescribed pattern is cut in the tubular workpiece; and for at least a portion of time during which the radiation beam is being directed, redirecting the radiation beam generated by the station radiation source so that it is scanned about a circumference of the tubular workpiece without rotation of the tubular workpiece. The instant claims 48-65 require a scanning galvanometer a conical mirror having an aperture through which workpiece passes; U.S. Patent No. 6696667 uses pivoted scanning mirrors, but fails to teach a conical mirror with apex aperture in the optical path.

Hella et al. teaches a method of laser heat treating a surface of a tubular workpiece by providing in the optical path of the laser beam a conical mirror having an

apex with an aperture through which the workpiece passes relative to the laser beam (see, conical mirror 15 of figures 1 and 2); wherein said conical mirror focuses or directs the laser beams in a form of annular or ring-shape beams to scan and impinge circumferentially on the outer surface or the tubular workpiece; wherein said laser beams provide uniform and non-overlapping coverage with a predetermined width and energy profile over the surface of workpiece, thereby heat treating the surface to a uniform temperature and depth (Hella et al. abstract , column 4, lines 5-25, column 4, lines 63-65, column 5, lines 37-645, and figures 1 and 2).

Though Hella et al.'s method is not directed to laser cutting, however Freedenberg et al. teaches laser machining as known in the art to encompass all types of material processing or removal, either partially or through the workpiece to include cutting, drilling, heating, heat treating, material deposition, and the like (Freedenberg et al., column 12, lines 44-49). Therefore the same laser apparatus and method for heat treating a workpiece can be used for cutting a workpiece. On the basis of the teachings of Freedenberg et al., one of ordinary skill intending to cut or drill circumferentially uniform, and non-overlapping holes on an outer surface of a tubular workpiece would look to Hella et al., since the method of Hella et al. provides an improvement in the laser beam alignment and symmetry (see., Hella et al. column 6, lines 25-31). Furthermore the method of Hella et al. provides uniform and non-overlapping annular laser beam coverage over the surface of the workpiece. (abstract, column 4, lines 1-25 and lines 59-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined method of AAPA and Freedenberg et al. to provide in the optical path of the laser beam a conical mirror having aperture at the apex as taught by Hella et al. so that the stent or tubular workpiece can be moved relative to the laser beam by passing through the aperture of the conical mirror, thereby allowing uniform and non-overlapping holes to be cut or drilled circumferentially on an outer surface of the stent (see, Hella et al. (abstract, column 4., lines 1-25 and lines 59-65).

These claims 48-65 of the instant application is clearly coextensive with the scope of the claims 1-19 of U.S. Patent No. 6696667 as modified by the combination of Hella et al. Freedenberg et al.

2. Claims 66-69 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 U.S. Patent No. 6696667 in view of Freedenberg et al. (US Patent No. 5620618).

Although the conflicting claims are not identical, they are not patentably distinct from each other because they share the following common features. Laser cutting a tubular medical device generating a beam of radiation from a stationary radiation source; and directing the radiation beam onto the tubular workpiece by scanning the radiation beam so that a prescribed pattern is cut in the tubular workpiece; and for at least a portion of time during which the radiation beam is being directed, redirecting the radiation beam generated by the station radiation source so that it is scanned about a circumference of the tubular workpiece without rotation of the tubular workpiece. The

instant claims 66-69 require a scanning galvanometer, while U.S. Patent No. 6696667 uses pivoted scanning mirrors.

Freedenberg et al. teaches a laser machining process by providing a movable pivoted mirrors or lenses (column 7, lines 60-64) or a galvanometer (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67) for scanning the laser beam onto the surface of a workpiece.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of U.S. Patent No. 6696667 to use a galvanometer for scanning the laser beam as taught by Freedenberg et al. since pivoted mirrors or lenses and galvanometer alternative means known in the art for scanning laser beam, therefore substituting one alternative for the other would have only yielded a predictable result (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67). These claims 66-69 of instant application is clearly coextensive with the scope of the claims 1-19 of U.S. Patent No. 6696667 as modified by Freedenberg et al.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 66-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Shapovalvo et al. (US Patent No. 6563080).

Regarding claim 66, Shapovalvo et al. teaches a method of manufacturing a medical device from a tubular workpiece (stent 247, figure 5) comprising: generating a beam of radiation from a stationary radiation source (abstract, and column 7, lines 46-50) (Note Shapovalvo et al. in column 4, lines 27-32 , teaches laser beam that moves relative to the stent or the stent moves relative to the laser beam from a source that is stationary) and directing the radiation beam onto the tubular workpiece (column 6, lines 13-14; claim 2) by scanning so that a prescribed pattern is cut in the tubular workpiece; and for at least a portion of time during which the radiation beam is being directed (see, figure 5, column 2, lines 11-16, column 3, lines 29-40, and column 7, lines 46-62). It is noted that the examiner interprets scanning as traversing or sweeping, see Dictionary.com. (Also see the attached extract from Dictionary.Com).

Shapovalvo et al. also teaches directing and redirecting the radiation beam generated by the stationary radiation source so that it is scanned about a circumference of the tubular workpiece without rotation of the tubular workpiece (see, column 3, lines 29-40, column 4, lines 29-45 and column 5, lines 38-47). It is noted that Shapovalvo et al. teaches a set of mirrors which direct and redirect the laser beam generated from the laser source so that it is scanned over the circumferential surface or the workpiece (see, figure 5 and column 3, lines 29-40, and column 7, lines 46-57). It is also noted that circumference is interpreted by the examiner as the outer boundary or periphery, see Dictionary.com. (Also see the attached extract from Dictionary.Com). Therefore, since the workpiece can be moved relative to the stationary laser beam and this movement can be achieved by movement in the longitudinal direction (as an alternative to rotating

the workpiece; column 5, lines 39-47); the reference clearly teaches scanning without rotation of the workpiece about a circumference of the workpiece.

Regarding claim 67, Shapovalvo et al. in figure 5 shows a scanned radiation beam within a planar scan area (circumferential surface of the stent), wherein the beam is incident at a 90° angle at the surface of the stent (note the laser beam impinges on the surface of the workpiece at an angle of 90 degrees).

Regarding claim 68, Shapovalvo et al. teaches a stent which is tubular (column, lines 13-14) and planar scan area that is perpendicular to a longitudinal axis of the tubular workpiece (figure 5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 48-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior ART (AAPA), (Applicant's Specification, page I and figure 1) in view of Hella et al. (US Patent No. 4,456811) and Freedenberg et al. (US Patent No. 5620618).

Regarding claim 48, AAPA teaches a method of manufacturing a medical device from a workpiece, comprising: generating a beam of radiation from a radiation source;

and directing the radiation beam onto the workpiece by impinging the radiation beam so that a prescribed pattern is cut in the workpiece (see, Applicant's specification, page 1 and figure 1). AAPA further teaches scanning the radiation impinging against the workpiece (Note that the examiner interprets scanning the radiation beam broadly as traversing or sweeping the radiation, see Dictionary.com). AAPA therefore broadly meets the scanning limitation since the radiation beam is caused to traverse over the workpiece to affect the prescribed cutting pattern.

AAPA fails to teach providing a conical mirror having an apex with an aperture through which the workpiece passes relative to the laser beam.

Hella et al. teaches a method of laser heat treating a surface of a tubular workpiece by providing in the optical path of the laser beam a conical mirror having an apex with an aperture through which the workpiece passes relative to the laser beam (see, conical mirror 15 of figures 1 and 2); wherein said conical mirror focuses or directs the laser beams in a form of annular or ring-shape beams to scan and impinge circumferentially on the outer surface or the tubular workpiece; wherein said laser beams provide uniform and non-overlapping coverage with a predetermined width and energy profile over the surface of workpiece, thereby heat treating the surface to a uniform temperature and depth (Hella et al. abstract , column 4, lines 5-25, column 4, lines 63-65, column 5, lines 37-645, and figures 1 and 2).

Though Hella et al.'s method is not directed to laser cutting, however Freedenberg et al. teaches laser machining as known in the art to encompass all types of material processing or removal, either partially or through the workpiece including

cutting, drilling, heating, heat treating, material deposition, and the like (Freedenberg et al., column 12, lines 44-49). Therefore the same laser apparatus and method for heat treating a workpiece can be used for cutting a workpiece. On the basis of the teachings of Freedenberg et al., one of ordinary skill intending to cut or drill circumferentially uniform, and non-overlapping holes on an outer surface of a tubular workpiece would look to Hella et al., since the method of Hella et al. provides an improvement in the beam alignment and symmetry (see., Hella et al. column 6, lines 25-31). Furthermore the method of Hella et al. provides uniform coverage and non-overlapping annular laser beam over the surface of the workpiece being treated. (abstract, column 4, lines 1-25 and lines 59-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined method of AAPA and Freedenberg et al. to provide in the optical path of the laser beam a conical mirror having aperture at the apex as taught by Hella et al. so that the stent or tubular workpiece can be moved relative to the laser beam by passing through the aperture of the conical mirror, thereby allowing uniform, non-overlapping and symmetrically spaced holes to be cut or drilled circumferentially on an outer surface of the stent (see, Hella et al. - abstract, column 4., lines 1-25 and lines 59-65 and column 6, lines 25-31).

Regarding claims 49 and 51, Freedenberg et al. and AAPA individually teach scanning the laser beam for cutting the workpiece; AAPA (figure 1) and Hella et al. (figure 1) individually teaches wherein the radiation beam incident at a 90° angle within a planar area of the workpiece and along the longitudinal axis of the tubular workpiece.

Therefore the combination of AAPA, Hella et al. and Freedenberg et al. meet the claim limitation

Regarding claim 50, both AAPA (the stent, figure 1 and specification, page 1) and Hella et al. disclose a tubular work piece shaft (10), figures 1 and 2).

Regarding claims 52 and 53, AAPA and Hella et al. combined teaches scanning the laser beam over the surface of the workpiece (see, Hella et al., column 4, lines 59-61) but do not particularly teach scanning with a galvanometer. One of ordinary skill in the art would appreciate that since Hella et al. is not particular about the type of the scanning device, any device known in the art for scanning a laser beam over the surface of a workpiece could be used.

Freedenberg et al. teaches a laser machining process by providing pivoted and movable mirrors or lenses (column 7, lines 60-64) or a galvanometer (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67) for scanning the laser or radiation beam.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of AAPA and Hella et al. to use a galvanometer for scanning the leaser beam as taught by Freedenberg et al. since an assembly of movable pivoted mirrors or lenses and galvanometer are known alternative laser or radiation scanners known in the art, therefore substituting one alternative for the other would have only yielded a predictable result (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67).

Regarding claim 54, AAPA teaches positioning at least one optical element (104, figure 1) along an optical path between the radiation source and the workpiece (se, Applicant's specification page 1).

Regarding claims 57 and 58, AAPA, teaches a workpiece (stent) made of stainless steel which is biocompatible (see, Applicant's Specification page 1).

Regarding claims 59 and 60, AAPA teaches workpiece comprising medical device such as stent or catheter (see, Applicant's Specification page 1).

Regarding claim 61, AAPA, teaches workpiece is translated along its longitudinal axis during the step of directing the radiation beam (AAPA, figure 1 and Applicant's Specification page 1).

Regarding claim 62, AAPA teaches tubular workpiece is rotated about its longitudinal axis during the step of directing the radiation beam (AAPA, figure 1 and Applicant's Specification page 1).

Regarding claim 63, AAPA, Hella et al. and Freedenberg et al. either in taken separately or in combination teach laser beam as indicated above.

Regarding claim 64, AAPA teaches pulsed laser beam (Applicant's Specification page 1).

Regarding claim 65, Hella et al. teaches a conical mirror which provides a circumferential or ring-like laser to incident on the workpiece; Freedenberg et al., teaches scanning galvanometer which provides multipass scanning, AAPA teaches laser beam for removing material from the workpiece (stent). The combined teaching of

AAPA, Hella et al. and Freedenberg et al. therefore meet the process limitation set forth in this claim.

Regarding claims 55 and 56, AAPA and Hella et al. fail to teach providing in the optical path a flat field telecentric lens (F-theta lens) prior to impinging on the workpiece.

Freedenberg et al. teaches a laser machining process by providing in the optical path a flat field telecentric lens (F-theta lens) prior to impinging on the workpiece; wherein said F-theta lens focuses the beam in a flat focal plane prior to impinging on the workpiece (Freedenberg et al., column 3, lines 55-67 and column 12, lines 23-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of AAPA and Hella et al. to provide flat field telecentric lens in the optical path prior to impinging on the workpiece as taught by Freedenberg et al. so that holes of straight walls can be drilled while holes with tilted or angle edges walls prevented (Freedenberg et al., column 12, lines 25-29).

6. Claims 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior ART (AAPA), (Applicant's Specification, page I and figure 1) in view of Shapovalvo et al. (US Patent No. 6563080).

Regarding claim 66 AAPA teaches a method of manufacturing a medical device from a workpiece, comprising: generating a beam of radiation from a radiation source; AAPA , further teaches scanning the radiation impinging against the workpiece (Note that the examiner interprets scanning the radiation beam broadly as traversing or sweeping the radiation , see Dictionary.com). AAPA therefore broadly meets the

scanning limitation since the radiation beam is caused to traverse over the workpiece to affect the prescribed cutting pattern). Note in figure 1, AAPA shows a stationary radiation source and also the tubular workpiece is not rotated. AAPA teaches that the tube or stent (108) *may be rotated* via a rotational motor drive and linearly translated via linear motion (112) - specification page 1, lines 10-12. Therefore one reading this cited portion would readily appreciate that rotation of the workpiece in AAPA is optional. Therefore the process of AAPA may be practiced without rotating the workpiece.

AAPA fails to teach directing and redirecting the radiation beam generated by the stationary radiation.

Shapovalvo et al. in figure 5 shows directing and redirecting the radiation beam (45a) generated by a stationary radiation (202) so as to san about a circumference of a tubular workpiece without rotation of the tubular workpiece in order to optimize the focus position of the radiation beam over the workpiece and also to reduce the sensitivity of the optimal focus position to both the aperture and focusing lens position. (See, Shapovalvo et al., column 5, lines 39-47 and column 7, lines 45-67). It is noted that Shapovalvo et al. teaches that the stent or workpiece may be rotated and/or moved in a longitudinal direction relative to a stationary laser (column 5, lines 39-47); therefore, the reference teaches no rotation of the workpiece.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify AAPA to direct and redirect the stationary radiation beam as taught by Shapovalvo et al. in order to optimize the focus position of the radiation beam over the workpiece and also to reduce the sensitivity of the optimal focus position to both the

aperture and focusing lens position (see, Shapovalvo et al., column 5, lines 39-47 and column 7, lines 45-67).

Alternatively, regarding claim 66, it is not taken that AAPA teaches scanning without rotation of the workpiece, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify AAPA to direct and redirect the stationary radiation beam to scan about the circumference of the workpiece by moving the workpiece in the longitudinal direction (no rotation) as further taught by Shapovalvo et al. in order to optimize the focus position of the radiation beam over the workpiece and also to reduce the sensitivity of the optimal focus position to both the aperture and focusing lens position (see, Shapovalvo et al., column 5, lines 39-47 and column 7, lines 45-67).

It would have also been obvious to one of ordinary skill in the art at the time of the invention to modify AAPA to scan about a circumference of the tubular workpiece without rotation of the tubular workpiece as taught by Shapovalvo et al. since scanning about a circumference of the tubular workpiece while moving the tubular workpiece longitudinally or linearly relative to the laser beam and scanning about a circumference of the tubular workpiece while rotating the tubular workpiece relative to the laser beam are said to be two known alternative processing techniques as exemplified by Shapovalvo et al., hence substituting one alternative for the other would have been within purview of one of ordinary skill in the art.

Regarding claim 67, AAPA in figure 1 shows radiation beam that is scanned within a planar scan area throughout which the beam is incident at a 90° angle (note the radiation beam is incident on the workpiece at an angle of 90 degrees).

Regarding claim 68, AAPA in figure 1 shows planar scan area is perpendicular to a longitudinal axis of the tubular workpiece.

7. Claim 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior ART (AAPA), (Applicant's Specification, page I and figure 1) in view of Shapovalvo et al. (US Patent No. 6563080) as applied to claim 69 above and further in view of Freedenberg et al. (US Patent No. 5620618).

Regarding claim 69, AAPA and Shapovalvo et al. teach scanning the laser beam over the surface of the workpiece but do not particularly teach scanning with a galvanometer.

Freedenberg et al. teaches a laser machining process by providing pivoted and movable mirrors or lenses (column 7, lines 60-64) or a galvanometer (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67) for scanning the laser or radiation beam.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of AAPA and Shapovalvo et al. to use a galvanometer for scanning the leaser beam as taught by Freedenberg et al. since an assembly of movable pivoted mirrors or lenses and galvanometer are known alternative laser or radiation scanners known in the art, therefore substituting one alternative for the

other would have only yielded a predictable result (Freedenberg et al., column 10, lines 11-28, column 11, lines 10-15, and column 59-67).

Response to Arguments

7. Applicant's arguments filed 06/18/2009 have been fully considered but they are not persuasive.

Applicant argues that the combination of Shapovalov, Hella and Freedenberg et al. is unreasonable. In response, the examiner considers applicant's argument to be persuasive and as such said combination is not applied in the rejections above.

With respect to 102(b) rejection of claims 66-68, applicant argues that there is no suggestion in Shapovalov, redirecting the beam generated by the stationary source so that it is scanned about a circumference of the tubular workpiece without rotation of the workpiece.

The Examiner disagrees. Shapovalvo et al. teaches a set of mirrors which direct and redirect the laser beam generated from the laser source so that it is scanned over the circumferential surface or the workpiece (see, figure 5 and column 3, lines 29-40, and column 7, lines 46-57). It is noted that "circumference" is broadly interpreted by the examiner as the outer boundary or periphery, see Dictionary.com. (Also see the attached extract from Dictionary.Com). Therefore, since the workpiece can be moved relative to the stationary laser beam and this movement can be achieved by movement in the longitudinal direction (as an alternative to rotating the workpiece; column 5, lines

39-47); the reference clearly teaches scanning without rotation of the workpiece about a circumference of the workpiece.

With respect to the combination of AAPA, Freedenberg et al. and Hella et al., applicant argues that the rationale and the motivation for said combination is deficient and insufficient and furthermore said combination does not render the claims obvious.

In response, contrary to applicant's assertion, the examiner's position is that the combination of AAPA, Freedenberg et al. and Hella et al. remains viable in rendering the claims obvious. Revisions to the rejections have therefore been made to clearly emphasize the rationale and the motivation for said combination. It should be pointed out that the collective teachings of AAPA, Freedenberg et al. and Hella et al. disclose substantially all the elements of the claimed invention.

Again it should be pointed out that though Hella et al.'s method is not directed to laser cutting, however Freedenberg et al. teaches laser machining as known in the art to encompass all types of material processing or removal, either partially or through the workpiece to include cutting, drilling, heating, heat treating, material deposition, and the like (Freedenberg et al., column 12, lines 44-49). Therefore the same laser apparatus and method for heat treating a workpiece can be used for cutting a workpiece. On the basis of the teachings of Freedenberg et al., one of ordinary skill intending to cut or drill circumferentially uniform, and non-overlapping holes on an outer surface of a tubular workpiece would look to Hella et al., since the method of Hella et al. provides an improvement in the beam alignment and symmetry (see, Hella et al. column 6, lines 25-31). Furthermore the method of Hella et al. provides uniform and non-overlapping

annular laser beam coverage over the surface of the workpiece being treated. (abstract, column 4, lines 1-25 and lines 59-65).

Therefore, by providing a conical mirror having aperture at the apex in the optical path of the laser beam in the combined method of AAPA and Freedenberg et al. as disclosed by Hella et al., the stent or tubular workpiece can be moved relative to the laser beam by passing through the aperture of the conical mirror thereby allowing uniform, non-overlapping and symmetrically spaced holes to be cut or drilled circumferentially on an outer surface of the stent (see, Hella et al. (abstract, column 4., lines 1-25 and lines 59-65 and column 6, lines 25-31).

With respect to applicant's argument that Freedenburg et al. show scanner 59 simply scans a laser beam within a plane on the flat part 12 and that nothing in the cited passage suggests that Freedenburg et al. could scan about circumferential workpiece instead of scanning in a plane.

In response, the examiner disagrees because; said circumference is broadly interpreted by the examiner as the outer boundary or periphery (see Dictionary.com). Both AAPA and Freedenburg et al. individually teach scanning over a periphery or an outer boundary of a workpiece.

It should also be pointed out that Freedenburg et al. teaches a step of directing and redirecting the laser beam by rotating a galvanometer 50 about an axis 54 to scan the workpiece (see Freedenburg et al., column 10, lines 12-20). AAPA teaches processing a tubular workpiece or stent hence by combining Freedenburg et al. with AAPA a laser beam could be directed and redirected to circumferentially scan the

tubular workpiece. That the combined process of Freedenburg et al. with AAPA would not be limited to scanning in plane as argued by applicant. Furthermore it has been held that, One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See, MPEP § 2143.01.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL ABOAGYE whose telephone number is (571)272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/M. A./
Examiner, Art Unit 1793

/Jessica L. Ward/
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